



## **Global Intercomparability in a Changing Ocean An International Time-Series Methods Workshop**

November 28-30, 2012 (Bermuda Institute of Ocean Sciences)

### **WORKSHOP AGENDA**

#### **Tuesday November 27, 2012**

Participants arrive in Bermuda

#### **Wednesday November 28, 2012**

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|-------------|---|
| 08:00-08:15 | Bus transports participants from Grotto Bay Beach Resort to BIOS  |
| 08:15-09:00 | Coffee and continental breakfast  |
| 09:00-09:15 | <b>Welcome and introduction</b> (W. Curry & N. Bates, BIOS, H. Benway, OCB, M. Telszewski, IOCCP)   |
| 09:15-09:30 | <b>Workshop objectives</b> (L. Lorenzoni, USF)  |
| 09:30-10:30 | <b>Plenary talks</b> (20 minutes each):<br><br><b>Scientific importance of time-series: Repeat Hydrography</b> (R. Wanninkhof, NOAA)<br><br><b>Scientific importance of time-series: Insights from fixed point observations</b> (R. Lampitt, NOCS)<br><br><b>Challenges of maintaining/sustaining time-series in developing countries</b> (V. Lutz, INIDEP) |
| 10:30-11:00 | Coffee break  |
| 11:00-11:30 | <b>Time-series methods overview: Why results must be comparable from site to site</b> (K. Johnson, MBARI)   |
| 11:30-12:45 | <b>Working Groups: Sampling protocols</b> ( <i>each WG will have a list of time-series to examine the order of discrete sample extraction</i> ) - <i>each chaired by a SAC member</i>   |
| 12:45-14:00 | Lunch   |
| 14:00-14:20 | <b>The Bermuda-Atlantic Time Series: An example of long-term time-series work</b> (M. Lomas, BATS/Bigelow)  |

- 14:20-17:00     **BATS tour**
- 17:00             **Poster session and mixer** (participants present a poster on their time-series)
- 19:00             Group Dinner at the Swizzle (<http://www.swizzleinn.com>)

## **Thursday November 29, 2012**

- 08:00-08:15     Bus transports participants from Grotto Bay Beach Resort to BIOS
- 08:15-09:00     Coffee and continental breakfast
- 09:00-10:00     **Day 1: Sampling protocol working group reports (Moderator: L. Lorenzoni)**
- 10:00-11:00     **Working Groups - Discrete parameters, round I** (*each working group will have one variable assigned and will essentially build on the current core protocols*)

1. **Pigments**
2. **In line measurements**
3. **CTD parameters/discrete calibrations**
4. **Inorganic macro and micronutrients**
5. **Biomass**

### **Guiding questions for the working groups:**

- a. *How many different methods are being used to measure these parameters, and are they intercomparable (i.e. has there been a direct comparison of the various methods)?*
- b. *Is there a consensus ranking of established methods (i.e. if you can't do X then proceed with Y)? If not, can we make one?*
- c. *What steps can we take now to ensure standardization of the methods? If consensus standards or CRMS are not available how do we achieve a meaningful comparison?*
- d. *Are there standard available? (same/different)?*
- e. *What are the limitations of each method?*
- f. *What are the uncertainties (QA/QC discussion)?*
- g. *What are the various state of the art methods and are there emerging technology for measurements is available?*
- h. *Is there a different nomenclature utilized at different time-series for these parameters? How can we standardize the nomenclature and reported units between time-series?*

- 11:00-11:30     Coffee break
- 11:30-12:30     **Working Groups - Discrete parameters, round I (continued)**
- 12:30-14:00     Lunch

- 14:00-16:00     **Working Groups - Discrete parameters, round** (*each working group will have one variable assigned and will essentially build on the current core protocols*) – *See guiding questions above*
1. **Carbonate System**
  2. **Rates**
  3. **Traps/Fluxes**
  4. **Organic matter**
- 16:00-16:30     Coffee break
- 16:30-18:00     **Round 1 Discrete Parameters Working Group reports and open discussion** (Moderator: N. Bates)
- 18:00             Bus transports participants from BIOS to Grotto Inn
- 19:00             Group dinner/celebration at the Grotto Inn

## **Friday November 30, 2012**

- 08:00-08:15     Bus transports participants from Grotto Inn to BIOS
- 08:15-09:00     Coffee and continental breakfast
- 09:00-10:30     **Round 2 Discrete Parameters Working Group reports** (working group leaders) **and open discussion** (Moderator: K. Johnson)
- 10:30-11:15     **Building consensus on biogeochemical sampling and measurement protocols** (plenary discussion moderated by L. Lorenzoni, H. Benway, M. Telszewski)

Guiding points for discussion include:

- a. identify major discrete sampling and measurement/analytical issues and define paths forward*
- b. Work on the base of a best practices guide (BPG) and modify it so that it describes the results from the working groups*
- c. BPG final categorization of methods will feature a tiered approach (with published precision and accuracy) so that methods are classified as:
 
  - i. optimal = highest quality (accuracy/precision) and/or efficiency*
  - ii. good = medium quality (accuracy/precision) and/or efficiency*
  - iii. acceptable = lowest quality (accuracy/precision) and/or efficiency**
- d. Provide recommendations to facilitate comparison among TS that are using different protocols*
- e. What technologies are available to conduct the measurements identified? What is desired?*

- 11:15-11:30     Coffee break
- 11:30-12:30     **Building consensus on biogeochemical sampling and measurement protocols** (discussion cont'd)

12:30-14:00	Lunch
14:00-14:30	Plenary talk: <b>Autonomous observations in the context of ocean time-series sites: some recent science showcases</b> (A. Körtzinger)
14:30-15:00	Group discussion: <b>Recommendations for automated sensors/instrumentation (cross-calibration issues)</b> (Moderator: A. Körtzinger)
15:00-15:30	Plenary talk: <b>World of data: The joys of oceanographic time-series data</b> (C. Chandler)
15:30-16:00	Group discussion: <b>Cruise planning and metadata and building and/or improving infrastructure for data sharing</b> (Moderator: C. Chandler)
16:00	Adjourn

Participants can leave right after the workshop or stay until December 1. Your expenses will be covered for the night of November 30.

## Workshop Sponsors

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